

**REMARKS**

Claims 1-45 are pending in the present application. Claims 4, 6-8, 11, 12, 21, 24, 27, 30, 31, 33, 34, 43 and 45 are currently amended to correct dependency and to spell out the full name of each compound for clarity. Claims 4 and 27 were also amended to add the opiate destruction-inhibitor "D-phenylalanine as a dipeptide with tyrosine." Support for this amendment is provided, for example, at page 5, lines 9-10 of the specification as filed. The Examiner has required the Applicant to elect "a single disclosed species of opiate destruction-inhibitor, a single disclosed species of neurotransmitter precursor, and a single disclosed species of cofactor for prosecution on the merits." The Examiner stated that claims 1-45 are generic.

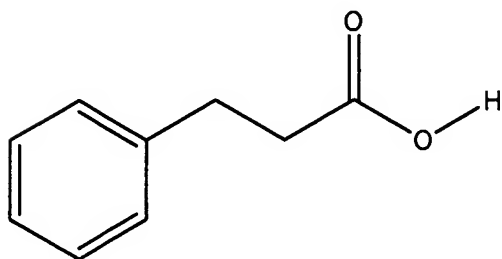
Of the species identified by the Examiner, the Applicant elects hydrocinnamic acid as the opiate destruction-inhibitor, L-phenylalanine as the neurotransmitter precursor, and N-acetyl-tyrosine as the cofactor. Because the Examiner has identified all the claims as generic, and because the Applicant has not added any new claims at this time, all claims read on the election.

The foregoing election notwithstanding, the Applicant respectfully traverses the restriction requirement.

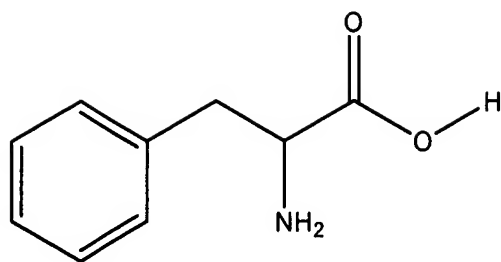
The Examiner cites to 35 U.S.C. § 121 as the basis for the restriction requirement; yet restriction is only permitted when a) inventions are independent or distinct, and b) there is a serious burden on the Examiner. MPEP § 803. The Applicant respectfully submits that it would not pose an undue burden on the Examiner to search for art. The Applicant also respectfully draws the Examiner's attention to 37 CFR §

1.141, which permits a reasonable number of claims directed to more than one species as long as such claims depend from an appropriate generic claim, which has been identified hereinabove by the Applicant. The Applicant further submits that, in any event, Examiner may make a search of the art for all the listed species without any serious burden as they are all within the same field of invention and class. Specifically, the Applicant respectfully submits that to searching the art to determine whether any one of the compounds claimed has been used to increase the natural reward of exercise should not be unduly burdensome.

Moreover, unity of invention exists where compounds included within a Markush group (1) share a common utility, and (2) share a substantial structural feature disclosed as being essential to that utility. MPEP §803.02. With respect to the opiate-destruction inhibitors, each compound disclosed can attach onto an enkephalin so as to prevent the enkephalin from degrading. It is the particular structure, and the similarity to each other, of each of the compounds that allows it to attach to the enkephalin. Each compound is structurally similar, some so much so that it is only a particular leaving group that is different between compounds. For example, hydrocinnamic acid has the following structure:

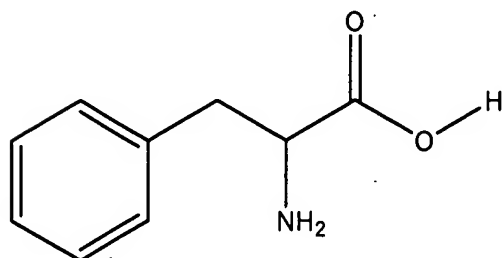


while phenylalanine has the following structure:

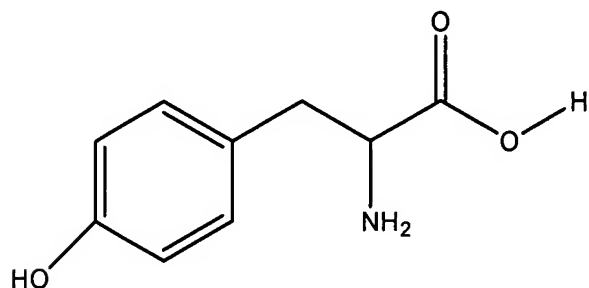


These compounds are only different in that one has an additional NH<sub>2</sub> group. Thus they are extremely similar and should be searched together. Thiolbenzene phenylalanine is just a phenylalanine with a thiolbenzene attached. Moreover, D-phenylalanine is the right-hand form of phenylalanine, while DL-phenylalanine is a mixture of right- and left-hand forms of phenylalanine. The structures are identical. Tyrosine is identical to phenylalanine, except that there is a hydroxyl group attached to the benzene group. Thus it should easily be searchable with phenylalanine, and the dipeptide of tyrosine and D-phenylalanine should easily be searchable with the individual amino acids. The Applicant submits that polypeptides (di- or higher) of amino acids should be easily searchable with the amino acids themselves, as they are just a number of amino acids linked together by one or more peptide groups. And because phenylalanine and tyrosine are subsets of the class of amino acids, they are properly searchable with the class of amino acids, not separately. Therefore, the Applicant respectfully submits that the selection of opiate-destruction inhibitors can be searched together, because the structures are substantially similar to each other and because they all perform the same function. As such, the Applicant respectfully requests that the restriction be withdrawn. Assuming, arguendo, that the Examiner does not agree that the polypeptides should be searchable with the single amino acids, the Applicant requests that the Examiner at least consider grouping hydrocinnamic acid, D-phenylalanine, and DL-phenylalanine together.

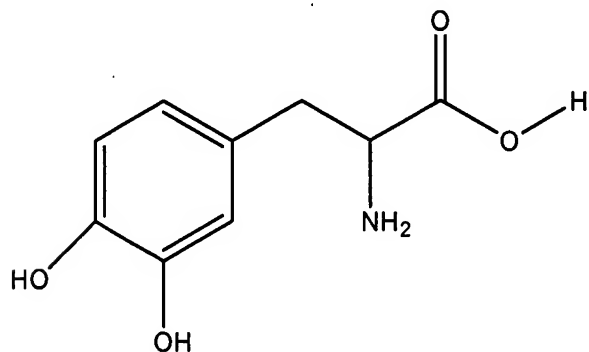
With respect to the neurotransmitter precursors, each listed compound is a precursor to a neurotransmitter. The structures of a number of the compounds are nearly identical. For example, the structure of phenylalanine is:



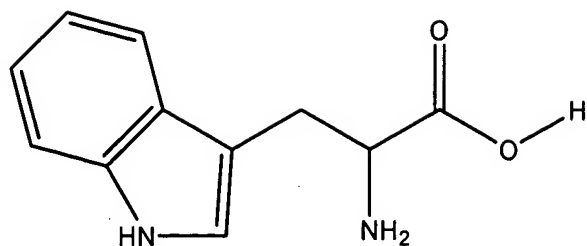
The structure of tyrosine is identical with the addition of a hydroxyl group:



The structure of dopamine is identical with the addition of another hydroxyl group:

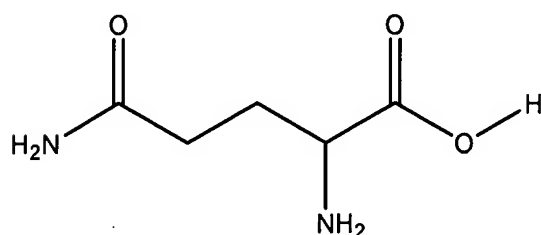


The structure of tryptophan is also extremely similar to the structure of phenylalanine with the addition of a five membered amide ring:



5-hydroxytryptophan has the same structure as tryptophan, except for the addition of a hydroxyl group.

Glutamine also has a similar amino acid structure to phenylalanine. The benzene ring is replaced with a CONH<sub>2</sub> group:



In glutamic acid, the NH<sub>2</sub> group of glutamine is replaced by a hydroxyl group, and a glutamate is merely a salt of glutamic acid. Thus, every compound listed as a neurotransmitter precursor is substantially similar in structure and function and should be searched together. As such, the Applicant respectfully requests that the restriction be withdrawn. Assuming, arguendo, that the Examiner does not agree, the Applicant respectfully requests that L-phenylalanine, L-dopamine, and L-tyrosine be searched together, as they are nearly identical in structure.

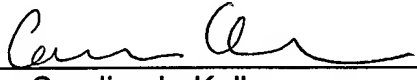
Finally, the Applicant submits that the cofactors, while not necessarily identical in structure, should be searched together. It should not present an undue burden to search each of these cofactors in view of the limitations presented in the generic claims. As such, the Applicant respectfully requests that the restriction be withdrawn.

The Applicant believes that the application is in condition for allowance, and a favorable action is respectfully requested. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles telephone number (213) 488-7100 to discuss the steps necessary for placing the application in condition for allowance should the Examiner believe that such a telephone conference would advance prosecution of the application.

Respectfully submitted,

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Date: March 10, 2005

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